

## **Background and Objectives**

Understanding the history and location of natural disturbances (e.g., fires and droughts) and human disturbances (e.g., dam construction and human settlement patterns) provides valuable information about past and current conditions of the watershed. The Historical Conditions module summarizes information on past watershed disturbances and on watershed conditions prior to disturbance.

The Level 1 approach relies on existing documents (e.g., maps, surveys, tribal documents, and research papers) as the primary source of historical information. The increased assessment time in the Level 2 approach allows for a more in-depth assessment of historical information or personal interviews with tribal elders and community members. Both the Level 1 and Level 2 approaches summarize the collected information in a timeline, a map, and a historical narrative.

# **Historical Conditions Module Reference Table**

Critical Questions	Information Requirements	Level 1 Methods/Tools	Level 2 Methods/Tools
HC1: What land use/management changes have occurred within the watershed since European settlement?	<ul> <li>Historical watershed information:</li> <li>Land surveys</li> <li>Settlement patterns</li> <li>Tribal documents</li> <li>State and federal reports</li> </ul>	Collect and summarize existing information	Develop survey/questionnaire     Conduct interviews
HC2: What are the natural setting and disturbance regimes in the watershed?	<ul> <li>Historical watershed information:</li> <li>Land surveys</li> <li>Vegetation surveys</li> <li>Climate data</li> <li>Fire records</li> </ul>	Collect and summarize existing information	Develop survey/questionnaire     Conduct interviews
HC3: Where and when have landscape changes occurred in the watershed?	<ul> <li>Anecdotal information</li> <li>Historical watershed information: <ul> <li>Land surveys</li> <li>Vegetation surveys</li> <li>Fire records</li> </ul> </li> </ul>	Collect and summarize existing information	• Conduct interviews

### **Level 1 Assessment**

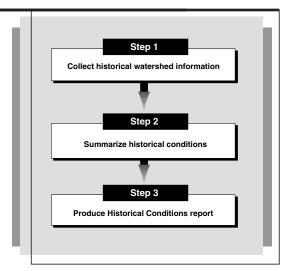
## Step Chart

## Data Requirements

- Historical watershed information
- Topographic map of watershed
- Aerial photos

## **Products**

- Form HC1. Historical timeline
- Form HC2. Trends in watershed resource conditions
- Map HC1. Historical sites
- Historical Conditions report



## Procedure

The objectives of the Historical Conditions module are as follows:

- To collect historical documents on the settlement and use of the watershed.
- To identify past human and natural disturbances in the watershed.
- To provide a historical context for the use and alteration of watershed resources.

### Step 1. Collect historical watershed information

The first step is to decide where to look for historical watershed information. Box 1 lists possible sources, and Box 2 lists places to start looking for documents on the history of the watershed. Consult the tribal council, tribal elders, and other

#### Box 1. Sources of historical information

- Old books and maps
  - Explorers diaries and sketches
  - Historical accounts
- · Public land surveys
- Tribal treaties and other documents
- Tribal elders
- · Landscape photographs
- · Aerial photographs
- · City plans
- Local and state history books
- Newspaper accounts
- Scientific journals
- Published oral histories

Community Resources Aquatic Life Vegetation Hydrology Channel long-time community residents for valuable anecdotal information about watershed conditions and uses. Also, consult with the Community Resources, Aquatic Life, Vegetation, Hydrology, and Channel analysts to share information.

#### Box 2. Locations of historical information

- Tribal archives
- · Historical museums
- · City archives
- Local libraries
- State, county, and federal agencies
- · Universities and tribal colleges
- · Local historical societies

The analyst should gather

information about historical development and changes to the landscape (e.g., dam construction, irrigation, settlement patterns, land use). It is also helpful to get information about climatic events and large natural disturbances (e.g., floods, hurricanes, fires, droughts, windstorms, earthquakes, insect outbreaks).

### Step 2. Summarize historical conditions

### Identify major historical events on timeline

An effective way to summarize historical events is in a timeline format. Figure 1 illustrates a general timeline approach. The detail of the timeline will vary depending

Figure 1. Sample Form HC1. Historical timeline

Date	Historical Event	
1850s	First eastern brook and rainbow trout stocked in Kootenai	
1890s	Early attempts at dike construction	
1890s-1930s	Channel alteration from log drives in tributaries	
1910	Wildfires	
1925	Lake Creek Dam in operation	
1930	Moyie Dam in operation	
1940	Sturgeon declines, commercial fishing stopped	
1950-1970	Cominco Fertilizer Plant	
1980	Non-selective kill from gas bubble disease, 17 miles from dam	

Adapted from Sasich et al. (1999)

on the amount of historical documentation available and the size of the watershed. It may be possible to extrapolate regional information to make assumptions about historical land use and disturbance. Organizing the information as a timeline enables readers to quickly understand the timing of important events that have affected watershed conditions. Whatever format is used for the timeline, label it Form HC1.

#### Summarize trends in resource conditions

From the information presented in the timeline, trends in resource conditions may be identified, and connections between land use practices and resource trends can be hypothesized. From the Kootenai timeline (Figure 1), trends in resource conditions can be connected to specific land use practices, such as dike construction, log drives, and dam operation. Information on watershed changes can be listed in Form HC2 (Figure 2). Consult with the Community Resources, Aquatic Life, and Water Quality analysts for a complete list of resources.



Figure 2. Sample Form HC2. Trends in watershed resource conditions

Resource	Trend	Disturbance
Sturgeon	Declining numbers found in Kootenai and tributaries	<ul><li>Channel alteration</li><li>Impacts from dams</li></ul>
Wetland habitat	Decreasing numbers of wetlands	Dike construction
Water quality	Higher quantities of chemicals in water	<ul><li>Dam operations</li><li>Industrial effluent</li><li>Mines</li></ul>

Adapted from Sasich et al. (1999)

#### Write watershed historical narrative

The watershed historical narrative pulls together the information collected on historical watershed conditions and natural and human disturbances. Beginning from the earliest information available, tie together the history of water quality, aquatic life, land use impacts, channel alterations, and settlement patterns. A sample watershed historical narrative is provided in Box 3.

### Map historical sites and landscape disturbances

Once the historical information is summarized, it may be useful to map the locations of historical sites and disturbances (Map HC1). If the watershed is large, break it into sub-basins to get a finer resolution.

#### Box 3. Watershed historical narrative from Quinault Watershed Analysis

The Upper Quinault River Valley remained geographically isolated until exploration by the Gillman Expedition in 1889. The first Euroamerican settlers arrived in the Cook/Elk and Quinault Lake [areas] in 1889, and practiced subsistence farming and grazing. By 1897, homesteaders had occupied most of the suitable bottom lands around Lake Quinault and as far upstream as the confluence of the North and East Forks of the Quinault River. Present day settlement is concentrated in the Neilton and Amanda park areas near Quinault Lake and in the unincorporated village of Taholah, located at the mouth of the Quinault River.

Timber harvesting, fishing and tourism have been the prominent economic influences in the Quinault River watershed. Logging began in 1916, when cedar was salvaged from the "Neilton Burn". By 1924 the advent of railroad logging made large-scale commercial timber harvesting viable in the Cook/Elk and Quinault River [areas]. Extensive road construction and subsequent timber harvesting occurred between 1950 and 1980. Although the level of old growth harvesting has declined in recent years, second growth forest management and related forestry activities such as cedar salvage and gathering of special forest products will continue to play an important role in the local and regional economy.

Quinault Indian Nation (1999)

Types of information to be placed on Map HC1 include the following:

- Dams and diversions.
- Water quality impacts (e.g., toxic spill, algal bloom).
- Channel modifications (e.g., dikes, channel straightening).
- Historical fishing sites.
- Historical wetlands and floodplains.
- · Historical sites.
- Fires.

### Step 3. Produce Historical Conditions report

The Historical Conditions report should include the watershed historical narrative, the map of historical sites (Map HC1), and the forms showing a historical timeline and resource trends (Forms HC1 and HC2). A possible outline for the report is provided in Box 4.

### Box 4. Sample outline for Historical Conditions report

#### A. Historical Watershed Narrative

- 1. Watershed resources at time of European settlement
  - a. Native American use
  - b. Vegetation
  - c. Presence and abundance of fish and wildlife species
  - d. Stream habitat
  - e. Natural disturbance patterns
- 2. Historical settlement, land use, and resource management patterns
  - a. Settlement patterns and development: rural and urban
  - b. Roads
  - c. Dikes
  - d. Logging practices
  - e. Agriculture
  - f. Urbanization
  - g. Grazing
  - h. Mining
  - i. Water use, diversions
  - j. Fisheries exploitation
  - k. Changes in disturbance patterns

### **B. Summaries of Historical Conditions**

- 1. Form HC1. Historical timeline
- 2. Form HC2. Trends in watershed resource conditions
- 3. Map HC1. Historical sites

#### C. Conclusions

- 1. Summary of watershed conditions and change
- Conclusions about historical conditions that are currently impacting community resources

#### D. Sources of information

Adapted from Watershed Professionals Network (1999)

## **Level 2 Assessment**

The Level 2 assessment is similar to the Level 1 assessment, but more time and resources may allow for more extensive information collecting activities, such as the following:

- Sending out a questionnaire to community members.
- Conducting personal interviews.
- Working with a local historian or university anthropology department.

## References

- Quinault Indian Nation. 1999. Quinault Watershed Analysis. Quinault Indian Nation, Taholah, Washington.
- Sasich, J., P. Olsen, and J. Smith. 1999. Kootenai River watershed assessment. Final report prepared for the Kootenai Tribe of Idaho.
- Watershed Professionals Network. 1999. Oregon watershed assessment of aquatic resources manual. Draft report prepared for the Governors Watershed Enhancement Board, Salem, Oregon.

### Form HC1. Historical timeline

Date	Historical Event

### Form HC2. Trends in watershed resource conditions

Resource	Trend	Disturbance

